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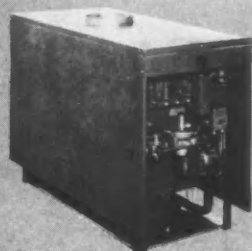


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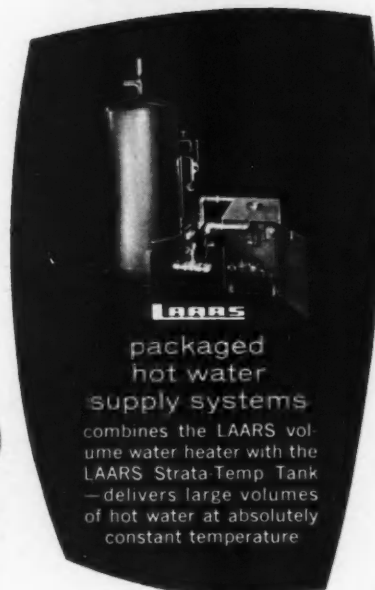
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April, 1960

Volume 3, No. 8

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THE PRESIDENTS' PAGE



**SOUTHERN
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Gerald I. Cain



**CENTRAL
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CHAPTER**



Jimmie R. Nunn

This month Southern Chapter yields its space on this page to a timely subject covered by Central Chapter's President Nunn.

ONE OF THE MOST serious problems facing our profession today is our relations with the public concerning new school building programs. Nothing gets more attention from the taxpayer than what is being done with the ever increasing taxes he is forced to pay. However, few of these people realize that only about half of this tax money is budgeted for education and of this amount only about 20 cents of the school tax dollar is used for new construction. This, of course, varies greatly from district to district, but I mention it here as a comparison with the tremendous amount of publicity and public sentiment that is aroused at the first mention of building a new school in the community.

This new school building will affect both the public's pocketbooks and the welfare of their children; yet, insofar as the architectural planning of the school building program is concerned, nothing is surrounded by so much misunderstanding and confusion. The property owners who bear the load understandably look for means of relief. Quite often the demand is for the elimination of "frills" on the new schools. This relief is all well and good if the "frills" are a wasteful use of tax money and not the elimination of sound building materials that are the basis of a good school plant. The real cost, although hidden, is in the operating and maintenance of a school plant. This is why it should be pointed out to the public by the Architect, the School Administrators, and the Press that we really cannot afford to build cheap schools; for this results in even greater maintenance costs.

Relief to the taxpayer should not be sought at the expense of good design or the reduction of the Architect's fees. The practicing Architect has a professional duty to keep himself informed on new materials,

techniques, changing conditions, teaching methods, and current work in the field. The truly contemporary school is designed from the inside out; both in planning for the educational processes it is to house and the materials and economics with which it is designed and built. The Architect must be properly paid for the work he does on each project to insure its being the best solution for that particular site, program, and budget. As professional people, Architects must deal fairly with the public in the fees they charge. Adjustments in the normal fee are justifiable if the project is of the multimillion dollar class and the adjustments are not made in competition with other Architects seeking the commission. The Mandatory Standards of the AIA should be the guide for any situation the Architect finds himself in concerning fees.

The Architects direct contact with the public on a school project is through the school board. It should be remembered that these people *are* the public and as such have had little or no dealings with Architects. In many cases they do not understand what an Architect really does, how he earns his fee, and what his costs are in doing the job. Nor do they realize the tremendous amount of mechanical and electrical items that must go in today's school and the cost of the consultants who do this work. These school boards are ever changing, and quite often by the time a member has learned these facts, he is replaced by another.

It is up to us, the Architects, then to work with these people who represent the taxpayer and try to inform them of our services, and how we can be of benefit to them. We are having trouble in some areas in this regard, but in others it has been achieved. It is rewarding to realize that the best in architecture today is being done in school design and construction. No reference can be made to modern design in architecture without pointing to excellent examples of schools throughout the world, which have been done by the conscientious Architect working for and in behalf of the public.

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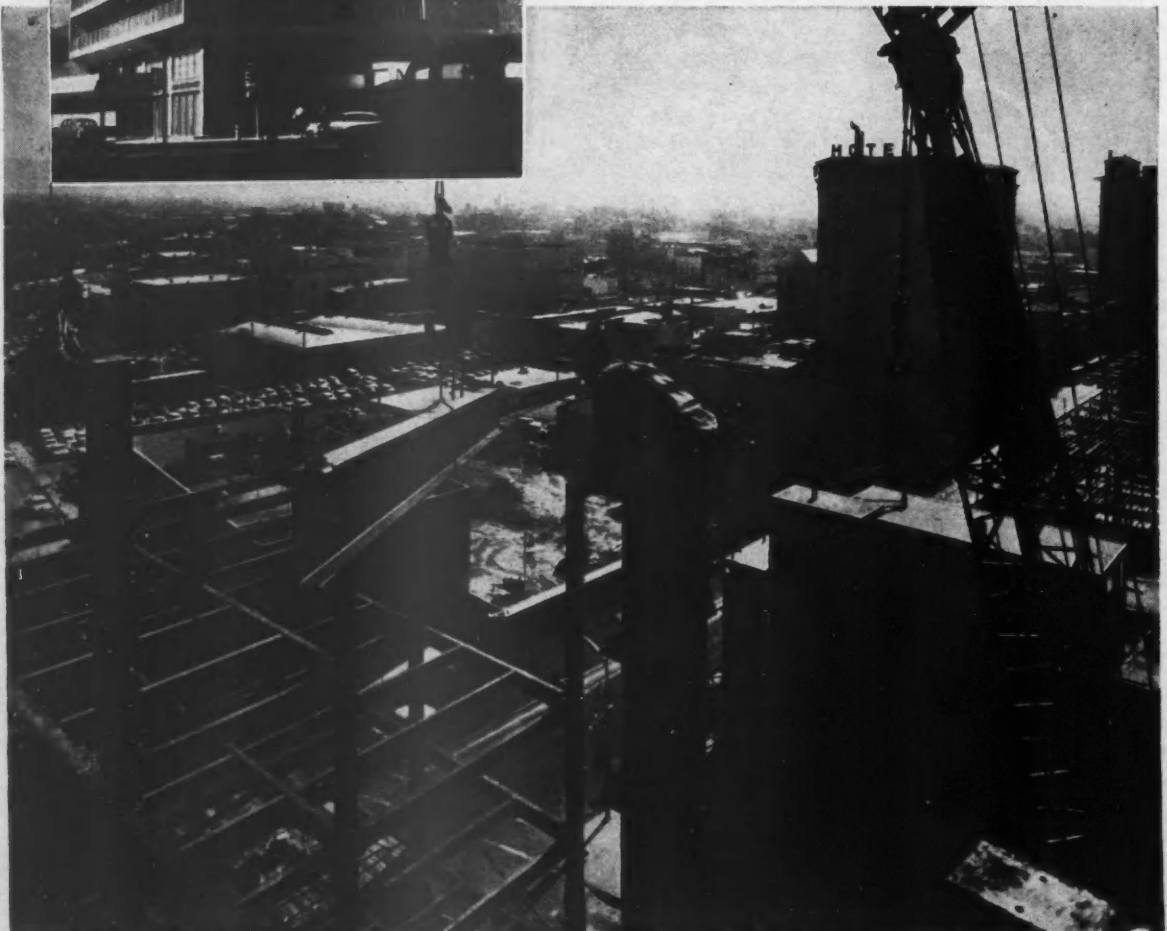


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Getting Along-Professionally

Suggesting An Appropriate Architect-Engineer Relationship

Reprinted from CONSULTING ENGINEER, January 1960



If architects did all
the kirks
And nothing else,



If engineers did all
the trains
And nothing else,



Harmony we'd have,



But nothing else!



By JOHN NOBLE RICHARDS

President, American Institute of Architects

Man's unending quest has resulted in the collection of an enormous and constantly-growing body of knowledge such that not even a Leonardo could begin to assimilate it. Because of this, men have been forced to seek knowledge through specialization. The result has been a stupendous advancement in learning, but at the cost of weakened communications between closely related groups. An analogy might be that of a number of men digging separate tunnels into a mountainside; if the mountain is Knowledge, the further each penetrates, the more remote he becomes from his fellows.

Applying this analogy to the architect-engineer relationship, there are many parallels. What is needed is a clearer understanding of who the architect and consulting engineer are, what they do, and how their relationship can be improved to their mutual benefit.

Since the two professions are much dependent on each other, I am convinced that a major step toward improved relations would be better understanding of each other. Toward this end, I would like to offer some observations about my profession.

The Architectural Process

The principles of good architecture today are still essentially the same as they were in the days when the Greek and Roman civilizations flourished. Vitruvius left us an observation, which was paraphrased by Sir Henry Wotton, in 1600, and still has currency today: "Well building hath three conditions: commodity, firmness, and delight." Interpreting commodity as *function*, firmness as *structure*, and delight as *beauty*, these words still form the keystone of the creative architectural process.

Function is the social purpose of any building, including what is to be done in it, who is to do it, and how it is to be done. I suggest that there is no quarrel as to the preeminence of the architect in dealing with function, though he may call upon many engineers for specialized knowledge in the process of his studies.

Architecture Is Broad Art

Vitruvius next spoke of firmness, or structure — more precisely, good engineering. Since this is so obviously an area where disputes between engineers and architects will arise, skip over it for a moment and consider Vitruvius' third condition — beauty. Here is the area in which the architect feels most at

home and where, because of the nature of the creative process, he is most frequently misunderstood. How does the architect see this creative process? First, architecture is an art form, like music, painting, and sculpture. Like the latter two, it is a visual art; unlike all three, it must be functional as well — it must shelter people, and serve as a primary aid to living.

Havelock Ellis, ordinarily an expert in quite another area, had this to say: "The art of building, or architecture, is the beginning of all the arts that lie outside the person . . ." Is this over-dramatization? I think not. Architecture is a matter of people, and it is the architect's job to adapt the art and science of building to human needs and wants.

This was not always so. Cheops did not give a fig for people when he erected the Great Pyramid, nor did Louis XIV with his incredible Versailles.

Today, however, buildings must functionally serve the people, processes, and events that take place within them. This human factor cannot be discounted, or reduced to formulae. If nothing more than shelter were necessary to satisfy man's wants, he should have been satisfied with the first cave he crawled into. The fact is, however, that man had no more than crawled into the cave than he promptly began decorating it with paintings.

Again, if man is to be contented with his environmental lot, why does he protest so much today against the unrelieved landscapes of smoke, telephone wires, and billboards? They may impede the function of the city, but the essential processes continue anyway.

The only possible conclusion is that man has an intuitive sense of beauty, whether it be in a flower, in a soaring tower of steel and glass, or in another human being. If this were not so, why in heaven's name would a grown man write a poem about a Grecian urn? More to the point, why would anyone want to read it?

Beauty is something integral to every society, though the level of taste is conditioned by the degree of education and amount of leisure time available.

In early America, as in any pioneer society, the first order of business was survival. Still later, with the growth of the country, an indigenous culture appeared, and it is from this that the culture of our own time has sprung.

Although the history of architecture shows various periods in which no advancements in technology or styles were made, today's architecture can only be described as vibrant and alive. Gone are the borrowings from Gothic, Renaissance, Baroque, or Georgian, as if they were so many icings on the cake. We already have seen the development of the spare, angular, thrusting architecture that characterizes our skylines today, and behind it are still newer developments that take advantage of man's advanced technological development, and the availability of new materials and forms.

My brief, then, is that the architect is a very real factor in our culture, and his eminence in today's world carries with it very real responsibilities. No one else can do this job for him.

Note that it is possible to repeat those same words, substituting engineer for architect. The engineer's role in the transformation of our society is no less important, but it is essentially different.

The architect does not for a moment contend that the engineer is without a creative spark. I know an engineer whose supreme moment was the creation of one of today's great bridges. That was many years ago. Even today, the story goes, he returns frequently to regard his work, and never fails to weep at the beauty of it. This is a feeling the architect understands.

The Area of Misunderstanding

Returning now to Vitruvius' second condition, good engineering, we enter the prime area of misunderstanding between our two groups. Some of the problems that arise are easily solved; others would try the wisdom of a Solomon.

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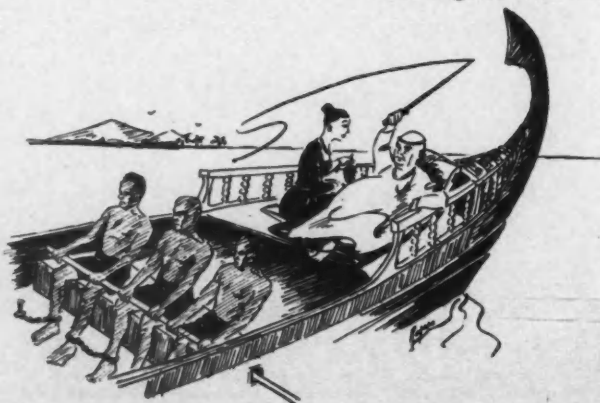
THE ARCHITECT AS A COORDINATOR

as he sees himself



Eight

as the engineer sees him



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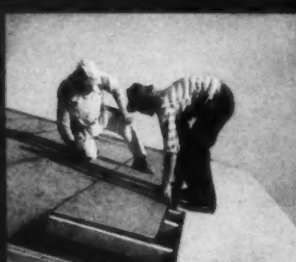
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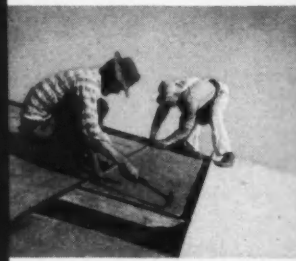
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GETTING ALONG

a fee basis, and when the work has to do with buildings, they usually are selected by and work under the direction of architects. Some engineers say that this is being relegated to inferior status by the architect. The architect does not understand this attitude at all.

If I could suggest an analogy, the modern airliner usually has a complement of three or four highly skilled men in the cockpit on every flight, each man performing a series of demanding duties that blend into an extremely efficient performance. But if each man in the cockpit were to try to do the other man's job, the result would be chaos.

Similarly, the architect who thinks he is an engineer, or the engineer who thinks he is an architect, and holds himself forth as such, is doing a disservice to his profession and the community at large. When this sort of wrangling develops, it creates a condition that is perfect for the package dealer — who might be called the threatening autopilot of our analogy.

Coordinating the Work

Who should serve as the coordinator of a building project? Custom dictates that it should be the architect for architectural projects and the engineer for engineering projects. So far, so good, but now come the problems. Engineers look upon power plants, warehouses, and factories as engineering projects. It is the contention of some that, once the mechanical and electrical equipment is in place and the structural frame is worked out — which is the engineer's job — wrapping it in a masonry exterior is something that any fool could do.

But someone must coordinate building projects, and the architect argues that he should assume this responsibility. If the engineer is fit to assume these duties, then he is an architect. Some engineers, in turn, frequently advance the argument that, on some projects, the engineering services represent up to 50 or 60 percent of the total construction cost. And since this is true, responsibility (and fees) should be recast with this in mind. But on any modern building project, there is not just one, all-knowing engineer — there are many. There are civil, structural, mechanical, electrical, and chemical engineers — and frequently others. The work of all these, the architect, rather than some one engineer, should coordinate.

It is not the contention of the architect that the engineers' job can be done away with. Far from it. It is, however, his argument that someone must collate the information of a great many engineers, together with the work of many other experts and technicians, and then must create out of these diverse efforts a coherent, functional structure that is also esthetically pleasing.

There is, we can agree, a greater tendency among

engineers to concentrate upon a narrow field. And while it is necessary for an architect to understand some engineering, the engineer does not necessarily have to understand any architecture.

Mutual Respect a Prerequisite

There is no gainsaying the fact that most architects could not design an intricate structure without the services of the engineer. Yet, to use another comparison, consider what must be the relationship between a surgeon, whose skills are applied to all parts of the body, and the orthopedist, whose frame of reference is more limited — but whose knowledge of that specific area is comprehensive. It would be unthinkable for the surgeon to attempt to diagnose an orthopedic ailment, and it would be equally unthinkable for the orthopedist to attempt to assume the broad responsibilities of the surgeon. Each man must, and does, respect the other's talents and special training.

Other areas of difference doubtless will continue to exist, but these are greatly in the minority. Engineers feel, frequently with good reason, that architects fail to give them proper recognition. Engineers also have heard from time to time of architectural firms with full staffs of engineers undertaking engineering projects. I think we are agreed that the shoemaker should stick to his last, and the only ethical solution to a problem such as this is for such a firm to have an engineer as one of the principals and operate as an architect-engineer.

On the other hand, architects find that some engineers still insist with a fingersnap that they can "do" architecture.

Packaged Competition

Instead of this sort of sniping, it would be far more desirable to have the two professions close ranks against the nonprofessional building service offered by the package merchant who purports to offer both design and building services in one contract and would supplant the art and science of building with propaganda and cut-rate designs.

A common lure is the guaranteed-price package contract. But no human being can look into the future and accurately guess at the exact future cost of materials and services. Thus, the only way in which a contract of that type can be offered is either to pad the price or to leave the specifications purposely vague to permit skimping. This practice destroys the economic advantages of competitive bidding by contractors, and it fails to provide professional supervision during construction. The packager supervises his own work. The end result is that the uninformed public all too often equates the package dealer and his all-too-frequent shoddy work with that produced by independent practitioners. Thus, the stature of both architects and consulting engineers is eroded by those who regard professional competence as a commodity they can buy and sell, and who regard

GETTING ALONG

professional registration laws as something to be flouted.

The truth is that the back-room designer, although holding himself out as a purveyor of a sort of super-market full of engineering and architectural services, does not have the courage to accept personal responsibility for the architectural and engineering decisions that flow out of his wheezing "think" machine.

Working Together

Despite all our arguments, the present relations between the architectural and engineering communities are generally very good, and steadily improving. Currently, the AIA is working very closely with the Engineers Joint Council, and we have an excellent joint committee. The objectives of this joint committee are: "To maintain and further develop proper relations between engineers and architects. To cooperate on problems of national scope which are of interest to The American Institute of Architects and the Engineers Joint Council as well as other groups, in areas such as design, site planning, construction, and matters of mutual interest."

We hope that some of the fruits of our labors soon will be evident to architects and consulting engineers, both as groups and as individual practitioners. We hope too that both professions will foster the growth of understanding.

On the personal level, architects should admit their

limitations, particularly in the areas of engineering and science. It is a frequent complaint of engineers, undoubtedly grounded in fact, that some architects are know-it-alls who kid the client into thinking of them as modern-day Leonardos, while the poor engineer labors unwittingly behind the scenes to support the deception.

But the engineer, for his part, must recognize his limitations, particularly in the areas of function and beauty. He should accept the architect as the coordinator on architectural projects, the man normally responsible for the engineer's work. We will, no doubt, long argue about which projects are architectural and which are engineering. It is easy to assign the home, the church or the school to the architect and the dam or the highway to the engineer. It is the great middle ground on which we sometimes disagree.

Team Effort the Answer

It is estimated that some \$600 billion worth of new construction will be undertaken in America in the next decade — more than the worth of all existing buildings in the country. This job must be done by the engineers and architects working as a team; there is simply no one else to do it. That is why our two professions must continue to bend every effort, both on the national and local levels, to promote good practice through strong registration laws, logical local building codes, and sensible regulations.



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Detailed Planning Report Shows Gilbert How To Grow

The agricultural town of Gilbert is the beneficiary of a comprehensive planning report prepared by the Maricopa County Planning and Zoning Department.

The scope and thoroughness of the 48-page document should make it possible for the town to grow solidly and attractively, and to the economic benefit of the entire community — if the plan is followed through.

Prepared by Western Business Consultants, under the auspices of the county on a shared cost basis with Gilbert, the report points out that the town is unique in that virtually all of the future growth estimated can be accumulated within present corporate limits. "Therefore, it should be relatively easy for the Town to guide new development in accordance with plans suggested" in the report.

Among the suggestions made is one to improve the appearance of the business district — possibly by using a "western-type" of architecture for storefronts along both sides of Main Street.

At a recent meeting of the town's Chamber of Commerce, businessmen exhibited a desire to follow

through by voting to remodel store fronts.

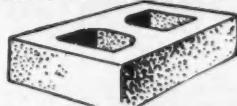
A plan for off-street parking facilities is included in the report, and recommendations for the attraction of industry due to availability of "substantial acreages, free from urban congestion, to which rail sidings can readily be run from the main line of the Southern Pacific Railroad."

The report points out that "Gilbert and its trade area could increase from some 3,300 persons in 1959 to some 7,200 persons by 1975-1980."

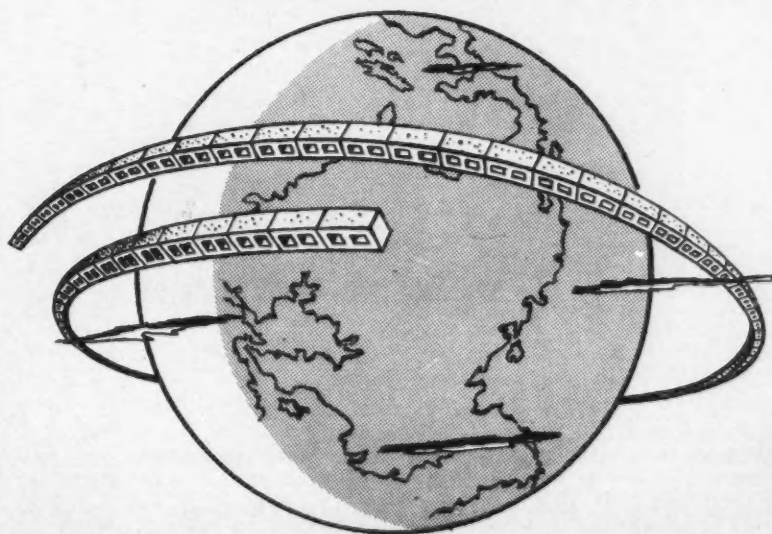
A significant advantage is mentioned which ought to be remembered by the community:

"Though the residents of the Gilbert Area may have to work harder to make their Area prosper than the residents of localities which are in the flood-tide of growth that is sweeping the Salt River Valley, the Gilbert residents will have one great advantage. They will be able to exercise greater control over their community's growth — their planning and their capital improvements can be on an orderly rather than on an emergency basis."

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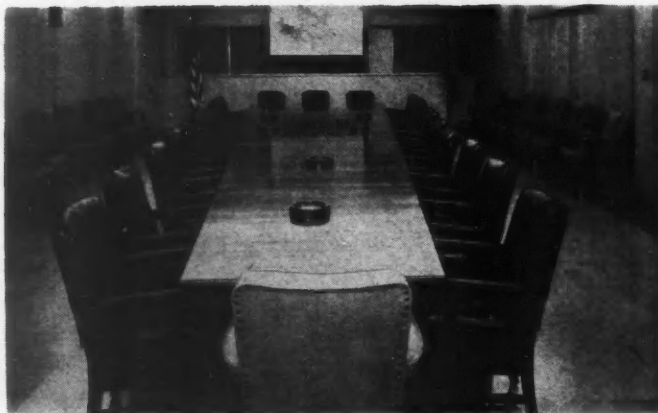
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Architect-Engineer Relationships

(Printed herewith is a portion of a discussion that recently took place in the Phoenix office of John Girand, a member of the American Society of Civil Engineers, former president of the Arizona Chapter, ASCE, and now a board member of the Arizona Consulting Engineer's Ass'n. With Mr. Girand were Jimmie Nunn, president of Central Arizona Chapter, AIA; Ralph Haver, chairman of Central Chapter's Fee Schedule Committee; and Richard Drover and Nicholas Sakellar, chairmen of the respective Committees on Collaboration with Design Professions of Central and Southern Arizona Chapters.)

Girand: An article in one of our professional magazines suggested that the architect-engineer relationship is something that needs work down at the grass roots. It's my hope that out of this meeting can come a better understanding of both of our places in the building world.

Today I feel that there are many engineers who perhaps do not understand that the basic principle in architecture is design, and there are some that are actually encroaching on the architect's area. The New Jersey case is involved with this relationship, and has caused a great deal of controversy. As a member of an engineering firm that has been working with architects for 20 years, I feel that we ought to take some steps that will prevent the situation that has arisen in New Jersey.

Haver: As was brought out in the article by President John Richards, of the AIA, in *Consulting Engineer* (see reprint page 7) the architect is becoming more and more of what you might call a coordinator between technicians. Only in the last few years, have they started introducing mechanical parts of the building. Nowadays it is getting so the mechanical part — plumbing, mechanical, electrical, air conditioning and special equipment — amount to as much as half of the building cost. Fifty years ago it was probably nearer ten percent. Now, half the sheets we issue on a job are not architectural, they are engineering sheets. This affects our fee schedule because we are having to pay all these specialists out of our normal six percent fee, and we are having to hire more and more of this work done, while our fee is staying the same.

Fortunately, we have a good law in Arizona that provides if it is an engineering project it shall be done by an engineer and he can do the incidental architecture. If it is primarily an architectural job, he can do the incidental engineering. Also, by having



Dick Dietrich Photo
Drover, Sakellar, Nunn, Girand, Haver

one technical registration board, it helps to keep the division.

Sakellar: There's one phase of the operation that hasn't been mentioned; it is the conception of a building. You can't divorce any of your engineering from the conception to which the engineering must conform. Because the architect conceives the building in its whole, he must remain the coordinator. This doesn't necessarily need to be so; if the engineer conceives a structure, he should be in charge. An engineer of any merit is the same as the architect. Nervi thinks like an architect, and has conceived and built many fine projects. A great many engineers do.

Nunn: The engineer can have a well developed sense of the esthetic. One of our most beautiful structures is the tower at Phoenix Sky Harbor airport. It was designed and conceived on engineering terms. Also some of the bridge structures. Others of beauty are the catenary suspension systems used for the big gas pipes going across rivers.

Sakellar: The word "architect" means steerer, and there is no reason why the engineer can't be an architect in that sense.

Haver: One of the best definitions of an architect — Em Scholer gave it to me — is that an architect's job is to buy a building for the owner. First he has to determine what building the owner should buy — help him program it because no such building exists — then he must describe this building by documents. In describing the building he very often has to get others to help him — the engineers. Briefly, the architect buys a building that will suit the owner's needs, at the best price he can. In order to buy it — because it doesn't exist — he describes it on a piece of paper and goes out and asks contractors: "How much will you sell me this building for?"

There is great misunderstanding on the fee schedule, most people perhaps believing that the stated fee is profit.

Drover: That's right. I've heard people say, when a \$40,000 fee is obtained, "That's \$20,000 for Weaver and \$20,000 for Drover."

Haver: This isn't exactly what the architect does,

GRASS ROOTS

but it illustrates the problem. When he starts on a job, the first thing he puts at the top of the budget is his profit — perhaps 15% of the total fee. Then he puts down his engineering and drafting costs, and and supervision costs and then tries to control it within that budget. The architect, being human, expects to make a living; if his fee is cut down, then he must try to save on engineering and drafting. He can't afford to eliminate the profit. When a fee gets down to a certain point, the architect is not able to perform properly and serve his client well by buying the best possible building. To pare an architect's fee is false economy, for if you cut the fee one percent and as a result the cost of the building goes up 10%, it is poor business.

Sakellar: What a school district does in the case of a million dollar building, is to give the architect a million dollars to spend for him. It's the architect's judgment and inventiveness and his decision that will determine the *value* that money will procure — whether it will be \$900,000 or \$1,200,000.

Girand: There have been jobs here that engineers have done that architects have thought were in their province, and I am sure that there have been architectural jobs that engineers thought they should have actively coordinated. It seems that the best way to avoid this is to start here at the grass roots.

Nationally, the "Inter-professional principles of

practice for architects and engineers" have been developed by a joint committee of the AIA and the Engineers Joint Council. They recommend that joint committees of architects and engineers shall be encouraged at state and local levels to promote greater understanding.

There are two major areas of confusion, coordination of the work and the fees. While I am not speaking for the profession, it seems to me that the work of the designer, mechanical engineer, civil engineer, foundation and soils man, should be coordinated by the architect. There are very few exceptions — highways being one example —

The problem of fees has plagued us for many years but I don't think it is impossible of solution. If the engineer can understand the architect's problem we will be closer to solving the problem than if we make no attempt to understand it.

Both architects and engineers are under continual pressure to reduce fees — to push the top limit down. From the bottom, the engineers are trying to raise the fees. You are caught in a vertical vice which narrows your own area. This is further complicated by the fact that your client expects far more service from the architects than was required a few years ago.

A joint architect-engineering group might be able to assist both of us. As a starting point we might work on three points:

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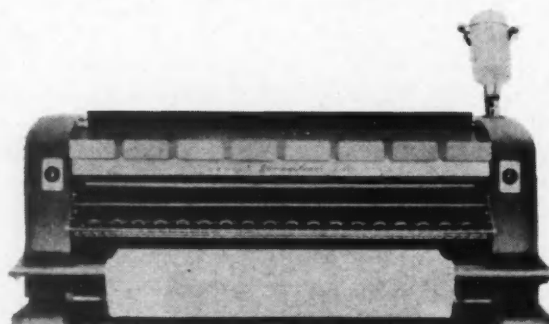


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(1) More clearly define the scope of the work. We have actually laid out a parking lot for an architectural firm under a contract that called on us to do the air conditioning. If the scope of the work can be more clearly defined, I think a fee could be arrived at which would be fairer.

(2) The problem of changes. It is really quite discouraging for an engineer to design a complete air conditioning system and then find that the architect had moved the columns six inches, requiring a complete re-design of the system.

(3) Acceptance of the idea that there is preliminary work to be done before the architectural contract is signed. Very few engineers realize how much work there is to be done before the contract is signed. School board meetings to attend; talks with store-front clients; finance people on shopping centers. During all this time the engineer usually does nothing and then after you've got the job nailed down, you call him in and say, "here it is" and sometimes he expects the entire fee.

If engineers could realize the extent of this work and if the engineers would participate, then there would be more equity in any later contractual relationships.

Oftentimes the architect and engineer can participate on a joint-venture basis, sharing the work and cost of preparation.

Nunn: We do need more collaboration, and per-

haps we can help each other.

Drover: In our regional area, the fee problem has been discussed. We know what we are doing to you fellows because we are in the position where we have to put that fee down. Where public works is involved, the problem of getting a more realistic fee schedule is a difficult one because it involves legislation. In one state, where the attempt was made, the state ended up without a registration law. It is something we need to keep constantly in mind.

Haver: The Arizona Society of Architects has discussed the problem and is working on the basis of proposing a sliding scale, which would be far more equitable than now.

Sakellar: One possible solution would be to separate the architect's fee from engineering fees, under the law. We've been kind of asleep. Through the years there has been an increasing amount of engineering work involved. We've been good scouts and included it in our contracts.

Girard: There are other problems, including the non-professional package merchant.

Haver: A prime reason for the success of the package merchant is that he makes it easy for the owner, who only has to deal with one person and therefore gets the false feeling that he is eliminating services and saving money.

Sakellar: Another appeal is that the package merchant will guarantee a total cost, whereas the archi-

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text can't.

Haver: The package merchant does free preliminary work as a mean of getting the job. If architects did this, it would mean that several might compete for the work and a great deal of loss would occur, which would have to be made up eventually in higher fees or poorer work.

Nunn: We'll take what we've discussed here back to our chapter, and impress upon them the need for closer collaboration. The next step would be to have a joint committee of engineers and architects and have it develop local policy recommendations. Thus we might establish something that we can get back to all of the members and perhaps suggestions on how they can get along better with each other. It can lead to other needed action — of informing the public what we are doing for them, and perhaps providing that the architects and engineers be paid separately. The immediate goal, however, would be to establish better relationships on the local level, with an eye to the three problem areas that have been discussed here today.

— AIA —

New Fund Encourages Building Research

The Board of Governors of the Building Research Institute, National Academy of Sciences-National Research Council, has announced the establishment of a

new Building Science Education Fund, to be used for the stimulation of a program for encouraging highly creative people to pursue building research activities in colleges and universities.

Impetus for the establishment of the fund came from requests by the BRI Education Liaison Committee under the chairmanship of Harold D. Hauf, Dean, School of Architecture, Rensselaer Polytechnic Institute, (Troy, N. Y.) Members of this committee have been working closely during the past year with college and university faculty members, in an effort to interest them more actively in research for buildings. Through the work of this committee, a number of BRI technical reports have been placed in the architectural and engineering libraries and in the hands of faculty members in nearly 350 schools of architecture, civil engineering and mechanical engineering. A number of schools have started using these reports on building research and development as classroom textbooks.

It is expected that the Building Science Education Fund will grow rapidly through contributions from all of the various disciplines which go to make up the broad complex of building design, construction, operation and maintenance. Inquiries about the Fund may be directed to Mr. Milton C. Coon, Jr., executive director, BRI, National Academy of Sciences-National Research Council, 2101 Constitution Ave., Washington 25, D. C.

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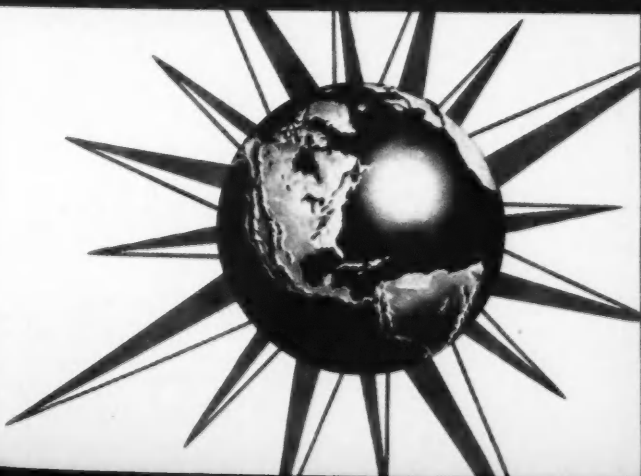
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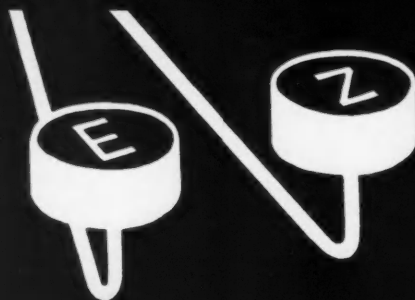
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Class 3

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FINE TUCSON SCHOOL PLAN LOOKS AHEAD

"... the problem of acquiring sites in the proper locations and the scheduling of adequate facilities to accommodate the predicted enrollment at any given time is of a magnitude almost beyond comprehension."

In 1955 a proposed master plan for the city of Tucson and Pima County brought out by the City-County Planning Department included a comprehensive study for location of Tucson Public Schools in District No. 1. Three reappraisals since 1955 have brought this school information up to date.

Because of the interest in school planning by Arizona architects, and to show what the forward-looking city of Tucson and its Planning Board are doing about the school problems, ARIZONA ARCHITECT here reprints sections of both the original 1955 survey report and the 1960-62 Reappraisal showing progress to date and future plans.

THE PROBLEM AS SEEN IN 1955

The problem is not just one of providing buildings for children of school age and providing for their education, but to provide the best facilities and educational techniques possible. We are not building factories to produce machines, but are dealing with human beings. Tucson School District No. 1 is the largest district in the state and is certainly one of the fastest growing. The total area of the district comprises approximately 228 square miles with over 50 square miles within the urbanized area of Greater Tucson. The district is divided approximately in half by such barriers as the Southern Pacific Railroad, U. S. Highway 80, the Santa Cruz River, and a part of Davis Monthan Air Force Base. The majority of the population is found to the east, but there are large concentrations lying between the barriers complicating the problem of school planning.

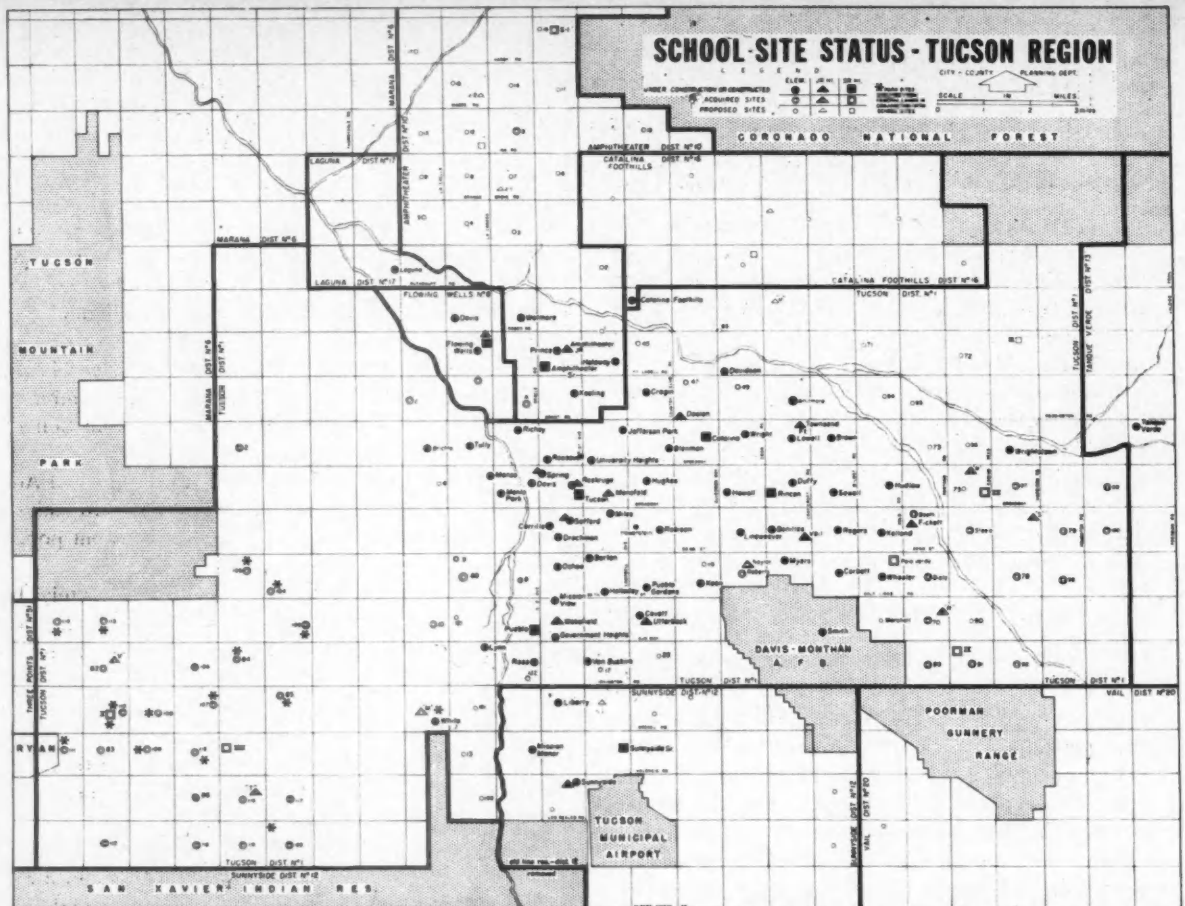
The population increase within the school district averages approximately one thousand (1000) persons per month. This is enough to increase the enrollment in elementary schools by 1,344 students, junior high schools by 348 students, and senior high schools by 504 students in one year's time. In the case of elementary schools this means that four (4) should be constructed each year to keep pace with the increased enrollment. The problem is not just one of increasing the facilities, but to determine where these facilities should be added to best cope with the increase in enrollment.

A SUMMARY OF FINDINGS IN THE 1955 REPORT INCLUDE THESE FACTS:

- The ideal neighborhood unit reflected in city and county planning and zoning, consists of a square mile framed by major streets with commercial areas at the intersections and an elementary school at the center providing a practical elementary district.
- The population of the district as it existed in 1940

was 52,000 and today (1955) it is 135,000. This represents a 160% increase. In 1940 the population of the district was 71.4% of the total county population. Today it is 67.6% of the 200,000 county residents.

- In spite of a general increase in population, certain areas near the Central Business District have shown a decline in student population due to the combined factors of an aging population and the transition of use from residential to non-residential.
- The recent engagement of the Urban Renewal Administration will in time rehabilitate mature neighborhoods which will mean an influx of student population.
- By adherence to the 1960 plan, approximately 16 of the major street crossings can be totally eliminated.
- Distorted and off-balance districts have resulted from locating a number of schools on the edge of a section, neighborhood or natural boundary.
- Some elementary and junior high schools within close proximity to the Central Business District are now located too close to one another for proper utilization.
- The present system of schools in Tucson School District No. 1 consists of 36 elementary, 6 junior high, and one senior high school. All are over-crowded and operating beyond design capacity in whole, or in part.
- In 1960 the total enrollment predicted is 41,480 pupils, of which 9,291 are high school pupils, 6,380 are junior high school pupils and 25,809 are elementary pupils.
- In 1970 the total enrollment predicted is 66,506 pupils, of which 14,817 are high school pupils, 10,164 are junior high school pupils, and 41,525 are elementary pupils.
- The existing senior high school plant has been expanded to twice the recommended national standard and is accommodating twice its designed capacity by utilizing the double session method.
- If the two senior high schools now under construction were already in operation, the existing enrollment could barely be accommodated.
- To adequately accommodate the predicted senior high school population, there will have to be four additional schools in operation by 1960, and a total of eight by 1970.
- The existing six junior high schools will have to be increased in number to 11 by 1960, and to 17 by 1970, and two of the older schools might be considered for interim abandonment, or other use.
- Due to the marked population increase in the eastern part of the metropolitan area, a large number of elementary school children have to be transported as far as five miles.
- Predictions and plans for elementary districts indi-



cate a need for construction of 26 new schools, and abandonment of three old schools to result in a net total of 59 by 1960. An additional 24 will be required by 1970 for a net total of 83.

SOME BASIC ASSUMPTIONS OF THE PROBLEM ARE:

- The population rate of increase will continue until the existing land use plan in the urban area reaches optimum development (90% of possible full development).
- Optimum development for the urban area will occur about 1970 at the present rate of population growth, although optimum development will not occur in outlying areas under present zoning.
- New residential development will extend in all directions from the central district in the same proportions as it has in the past.
- Anticipated population and industrial growth of the community indicate probable future changes in the land use pattern to conform very nearly to that allowed under existing zoning (possible changes in zoning cannot be predicted).
- Increased population and traffic will require expansion and improvement of the major streets and routes system according to the adopted Master Plan.
- Urban renewal may be applied in certain areas before optimum development occurs.
- There will be a continuation of Pima County's con-

formity to the national fertility rate.

- Existing boundaries of School District No. 1 will not change.
- Pupils from other school districts are not to be accommodated.
- Parochial students will remain 12% of the total enrollment.
- It is uneconomical to maintain old schools in areas of decreased population because of high transportation costs, obsolescence and maintenance of reasonable school plant standards.
- Only a minimum amount of pupil transportation is economically justified.
- There will be a continuation of the existing 6:2:4 educational plan.
- The present standards and principles employed to locate schools will continue in the future.
- The square mile, bounded by major streets with an elementary school at the center is the ideal neighborhood unit.

PRINCIPLES & STANDARDS FOR LOCATING SCHOOLS

- Children should not be required to walk great distances to schools. The recommended walking distance is one-half mile for elementary students and one mile for junior high students. This distance must, of necessity, be raised in Tucson because of the low population density.
- Children, particularly those of elementary school



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SCHOOL LOCATION CAN BE PROTECTED BY:

- Farsighted Land Use Planning.
- Adherence to the Established Zoning Plan.
- A Well Designed Street Pattern Which Would Keep Traffic Out of the Neighborhood.

age, should not be required to cross major streets which carry heavy traffic, railroad lines at grade, nor business or industrial districts, unless it is unavoidable.

• Elementary schools should be located near the center of the residential neighborhood which they serve, apart from business and industry and away from main traffic arteries, and combined with a neighborhood recreation area.

• Schools should be located away from industrial areas, railroads, airports, or any other facility which renders noise, vibration, smoke, odors, or other characteristics detrimental to the operation of the school.

• Junior high schools should be located near, but not necessarily on major thoroughfares; apart from commercial uses and insulated from residential uses wherever possible.

• Other conditions being equal, the distance between schools should be uniform for school service areas.

• No school of one classification should be located adjacent to or on the same grounds as one of another classification. There is no direct relationship between the three types. Age differences, activities, traffic conditions, and educational facilities of one could be detrimental to the other.

THE CURRENT REAPPRAISAL

The 1960-62 third reappraisal of the basic 1955 Tucson School District No. 1 School Plan lists two purposes in its introduction: (1) it outlines construction needs in the District through the 1961-62 school year, and (2) forecasts site needs in areas of expected growth.

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TUCSON SCHOOL PLAN (Cont.)

STANDARDS FOR PLANNING SCHOOL SITES

Class of School	Grades	Service Radius in Miles	Size of Site Acres	Total Enrollment Preferred Range	Maximum Classrooms Per School	Maximum Pupils Per Room
Elementary	1-6	5/8	10	180-600	20	30
Junior High	7-8	1 - 1/4	20	400-600	24	25
Senior High	9-12	2	40	1000-2000	40-80	25

Prepared by the City-County Planning Department in co-operation with the Board of Education, Tucson, Arizona.

as the most rapidly developing area in the District. Interest there has been intensified with adoption of the Rincon Area Plan which sets a pattern for dense housing east of Pantano Wash. Neighborhood plans reflecting this change are already being submitted.

There are also some indications of growth on the District's western edge in the vicinity of the Tucson Mountains. This was reflected with the need for the new Brichta elementary school nearly 10 years earlier than anticipated in the 1955 study.

Trends of growth in these two areas should be watched carefully so that future school sites can be reserved before development raises land values.

DISTRICT 1 IN PROFILE - 1960-62

- 1 Tucson District 1 takes in an area of 228 square miles and includes the core of the present urban area.
- 2 Facilities in the District's system consist of 45 elementary, 9 junior high and 4 high schools. In addition, 5 new elementary schools and 1 junior high school are under construction and will be completed for use in the 1960-61 school year.
- 3 Residing within the District is 82 per cent of the estimated Tucson urban population of 245,100. (midyear 1959 estimate)
- 4 Average annual migration into Pima County since 1950 has been 10,820 persons. Of these, 9,000 have become residents of Tucson District 1.
- 5 Total enrollment has been increasing by 2,000 to 3,000 pupils annually in each of the last five years (1955 through 1959). Enrollment at the end of school year 1958-59 was 2,818 higher than at the same time in 1957-58.
- 6 There are 58,645 dwelling units in the District as of December, 1959.
- 7 Average pupil per dwelling ratios in the District are 0.39 for elementary, 0.11 per junior high and 0.15 for high school enrollments. Overall ratio is 0.65 pupils per dwelling unit.
- 8 Enrollments at 18 elementary schools built in 1945 or earlier, and thus located in the older sections of the District, are generally holding up despite new housing areas on the urban fringe. Five of these schools are now over capacity, and three more will be at or over capacity by 1961-62.
- 9 An estimated 1,200 families, including 600 to 750 pupils, may move from District 1 with the impending personnel cut at Davis-Monthan Air

Force Base in 1960. A bulk of the pupil loss will be at elementary schools. Full effect of the personnel cut cannot be assessed at this time.

- 10 Projected enrollments in 1961-62 will be 26,270 in District 1 elementary schools, 7,290 in junior high and 10,350 in senior high schools, a total of 43,910 pupils. These are increases over 1959-60 enrollment figures of 14% in elementary, 14% in junior high and 19% in senior high school.

Six major assumptions preclude the new classroom and site recommendations.

- 1 No major changes in Tucson's economy, other than the cut in Davis-Monthan Air Force Base personnel now set for 1960.
- 2 Continued new home construction within the district at about 2,000 units a year.
- 3 Continued migration into the District at an average of 750 persons monthly.
- 4 Service areas of 5/8 mile radius for elementary schools, 1 1/4 mile for junior high schools, and two miles for senior high schools.
- 5 Continued present pupil per dwelling trends.
- 6 No major zoning changes within the District.

NEW CLASSROOM RECOMMENDATIONS

A total of 87 additional elementary classrooms will be necessary to accommodate the increased 1961-62 enrollment. Included are four complete new schools:

- a. STEELE, a 20-classroom facility, to serve an area bounded by Broadway on the north, 22nd Street on the south, Camino Seco on the east and Pantano Road on the west.
- b. DIETZ, a 12-classroom school to serve Manana Grande subdivision bounded by 22nd Street and Golf Links Road on the north and south respectively, Kolb Road on the west and Pantano Road alignment on the east.
- c. BOOTH, also with 12 classrooms, to serve an area between Broadway on the north and 22nd Street on the south, Kolb Road on the west and Pantano Wash on the east.
- d. An 8-classroom school on Site 95 north of East Speedway and east of Kolb Road to serve a large portion of the District on the northeast. The east boundary of the Brown School District can then be set at Pantano Wash.

Additions will be needed at Hudlow, Roberts, Sew-

ell, Tully, Van Buskirk and Whitmore.

School room recommendations for Cragin, Davidson and Ochoa (total of 9 rooms) are merely an index to the future school room needs in these areas by 1961-62. The school district should consider site acquisition and future construction of new schools in these districts as the more desirable means of meeting future enrollment growth.

Thirty-five more junior high school classrooms, including one new plant, will be needed by 1961-62. The new school proposed is Naylor, a 25-room facility at Columbus Boulevard and East 26th Street. An addition of 10 classrooms will be needed at Doolen Junior High School. It is further recommended that a new 20-room school should be planned for one of two East Side sites by the 1962-63 school year.

A new high school — Palo Verde — should be built as soon as possible on the District's site at East 22nd Street and Avenida Vega. An 80-room plant is recommended. It will have an enrollment of at least 1,400 by 1961-62.

SITE RECOMMENDATIONS

Provision should be made to acquire 21 new school sites as shown on the Site Status map. Included are:

1. Seventeen elementary sites where housing developments can be expected in the foreseeable future.
2. A junior high site in the general area north of River Road and east of Swan Road.
3. A senior high school just east of Camino Seco and north of Ft. Lowell Road alignment. No definite high school site recommendations have been made in this study for the area west of the Santa Cruz River and north of Irvington Road. However, school officials should consider the acquisition of at least two high school sites in this general area in the near future.
4. Sites should also be acquired as soon as possible in three problem areas where additional classrooms will be needed by 1961-62. These are those sections of the District now served by (a) Davidson School, (b) Cragin School and (c) Rose, Mission View and Ochoa Schools.
 - a. Davidson serves approximately six square miles (this will be reduced approximately two square miles when Whitmore School is completed). Pupil increases by 1961-62 would normally require a two-classroom addition. However, the Davidson site is less than 10 acres, and thus, any addition would be unfeasible. The District should consider acquisition of either Site 47 or 49 to meet future optimum development in the area.
 - b. The Cragin School currently serves an area of approximately three square miles. Pupil increases by 1961-62 show that Cragin would need an addition of three rooms by that year. In order to decrease present Cragin School attendance area to desirable standards, however,

it is recommended that the District consider acquisition of Site 45.

- c. The problem at Rose and Mission stems from poor location planning prior to formal school studies. In addition, both districts will be bisected with construction of the Tucson-Nogales Interstate Highway, now in advanced planning stages. To improve this situation, school officials should acquire either Site 17 or Site 122 south of Michigan Street in the Rose District or both.

SITE STATUS . . . a progress report

Since capital outlay for new facilities to keep up with growth is staggering, tax dollars must be saved wherever possible. One way this has been done is site acquisition in advance of development and booming land values. The City-County Planning Department has helped District 1 plan for tomorrow by today providing answers to three questions:

Where should school sites be acquired?

Where and how large should new schools be?

What existing school plants need expansion?

The first major Tucson District school study was completed in 1955 and adopted as an important part of the master plan. It pinpointed new school needs through 1960-61 and forecast site acquisition requirements to 1970. That first study has proven a strong foundation for two subsequent reappraisals.

Recommended by the 1955 plan were 649 classrooms (343 elementary, 78 junior high and 228 high school) by the 1960-61 school year. In January, 1960, a total of 634 had been built, were being completed or were proposed under a new bond issue.

Twenty-six complete new elementary schools were recommended in foreseeing 1960-61 enrollments. Eight of these have been built, five are under construction and bond funds for three more are being asked. Sites for six have been acquired and are ready for development.

Forecasts of junior high and senior high school needs by 1960-61 were more accurate. The 1955 report proposed four junior highs. Three are now completed, and the other is under construction. Of four senior high schools recommended, three are in use, and funds for the fourth — Palo Verde — are incorporated in a 1960 bond issue.

In addition, 50 elementary sites, 10 junior high sites and 5 senior high school sites have been acquired on the basis of the 1955 survey. These are for optimum expansion by 1970. Many of these are on federal and state lands where sites can be reserved at extremely modest cost before the raw acreage passes into private ownership.

Reappraisals of the initial study were adopted in 1957 and 1958. In practically every recommendation in these reappraisals, growth trends foreseen in the initial survey were borne out. This third reappraisal also amplifies forecasts of District 1 expansion five years ago.

Annual Architect Engineer Dinner

A fascinated audience of architects and engineers watched Professor of Architecture Paul Jacques Grillo demonstrate natural structural forms with soap films following the March joint meeting of the Central Arizona chapters of AIA and Arizona Society of Professional Engineers.

Introduced to the meeting were newly registered architects Curtis Schafer (left, below) and William T. Baker (right), and new AIA corporate member Ross Jensen.



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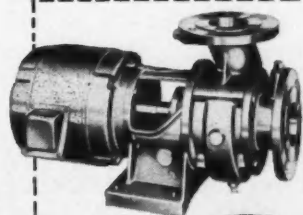
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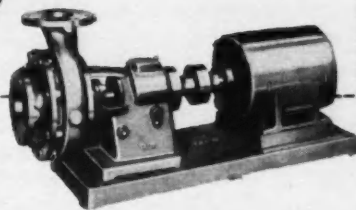
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HARDWARE TIPS

by Veron Junger, A.H.C.
GUARDIANSHIP

We received favorable comments about our last column, so we're off on the same tack again.

Architects not only guard the most permanent artistic values of civilization, but they are also the guardians of the specific interests of their clients, whether private individuals

or taxpayers. Architects must be experts with a wide and current knowledge of building materials and techniques. Structures designed by architects perform more efficiently, economically and artistically than do structures designed by people without their training and talent.

The most successful architects combine outstanding talent with an attitude of guardianship. They use new products and new techniques to give clients more space, efficiency and satisfaction per dollar. They encourage competitive bidding. They write specifications around desired functions rather than to restrict competition. This keeps suppliers calling on them with current information and, almost effortlessly, they, thus, keep themselves up-to-date and able to effect important savings for clients.

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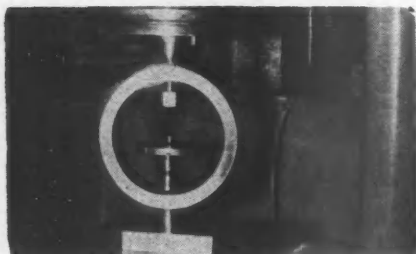
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Later announcements will keep you informed of additional progressive steps we will be taking to increase service, at no additional cost. We believe such a program is the duty of a testing laboratory.

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SHORT COURSE AT UNIVERSITY OF ILLINOIS

"Explorations in Creative Architecture" will be theme of the seventh annual University of Illinois Short Course in Architecture May 3-5 at Allerton House, U. of I. conference center.

Speakers will be outstanding architects, engineers, and creative discussion leaders.

Central topics will be "The Creative Process"; "Architectural Design - Creation to Completion"; "Imaginative Engineering in Architecture", and "Public Acceptance of Creative Architecture."

The course will be conducted by the U. of I. department of architecture and Division of University Extension for practicing architects and engineers, and for others interested in the program.

Information about the short course may be obtained from Conference Supervisor, 116-e Illini Hall, Champaign, Ill.

LANDSCAPE AWARDS

The Eighth Annual Industrial and Institutional Landscaping Awards Competition is announced by the American Association of Nurserymen. These awards have become outstanding in the field for national recognition of better public, community and employee relations due to attractive settings for industrial plants, institutions and retail service organizations. Entries must be received by September 1, 1960. Classifications include:

1. Manufacturing and utilities, including research buildings.
2. Retail and service establishments.
3. Public and private institutions.

Winners include both large and small firms. Judges have included nationally-known industrialists and qualified landscape architects. A folder describing the awards, containing entry procedure and list of winners of the past five years will be mailed upon request to Dr. Richard P. White, American Association of Nurserymen, 635 Southern Building, Washington 5, D. C. Awards are based on 8 x 10 photos taken from angle to best picture the landscaping design and planting. "Before planting" and "after planting" pictures are desirable, but not required.

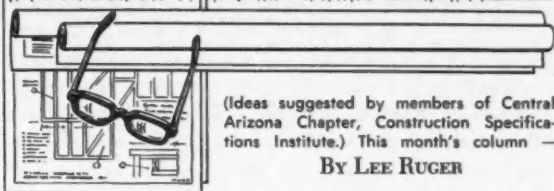
The architect is now hovering in my maturing imagination, not as a superman, but as a real man — a philosophic man of the world: as the creating, guiding, sustaining SPIRIT: to the end that the finished building may and shall be an ethical TOTALITY — however large, however small.

— Louis Sullivan

The point that matters is what we are to understand by luxury. Luxury does not simply mean waste of material, but only makes sense when it broadens emotional experience by means of new discovery.

— Frank Lloyd Wright

LOOKING AT THE SPECS



(Ideas suggested by members of Central Arizona Chapter, Construction Specifications Institute.) This month's column —

By LEE RUGER

The growing popularity of "Unit Masonry" construction — clay brick — cement block — stone — mortar — seems to have an interesting side effect . . . the increased use of paint.

The Structural Clay Products Institute states: "Paint may be applied to masonry walls for decorative purposes, to increase light reflection, particularly from interior masonry surfaces, or as a barrier to rain penetration through exterior walls. The masonry paints recommended for these purposes by paint manufacturers are principally cement-water paints, resin-emulsion paints, oil-base paints and synthetic-rubber paints."

But, even the finest quality paints will fail prematurely unless specifications insure that the paint meets specifications, the masonry surface has been carefully inspected, and properly prepared.

Always check the latest recommended specifications. The paint and masonry industries are constantly researching and creating new ideas and methods.

Through chemistry, the paint industry is developing improved materials for prime sealing and filling. A recent recommendation on new masonry construction is a new type washed silica sand and white portland cement material with vinyl binder. This material seems to be an excellent water-proofing preparation which fills voids and porous surfaces, and the paint can be applied with any type of paint finish desired. Application is by a fibre brush or roller.

Specifications for previously painted surfaces should recommend a penetrating type conditioner. If the old surface coating is sound, shows no peeling or blistering, and is not chalking excessively, the penetrating conditioner will work satisfactorily. But if the surface is exceedingly bad, sand-blasting is recommended. Soaps or detergents, if used, must be completely removed from the wall surface for proper adhesion of the new paint.

For oil paint used on new masonry within 6 months after construction, it is usually necessary to apply a wash coat of zinc sulphate solution to neutralize the alkali in mortar joints.

Cement-water paint should be applied to a uniformly damp, but not wet, surface. A "fog" nozzle on a garden hose dampens walls easily. Use the same equipment for curing each coat of cement-water paint. Polyvinyl acetate emulsion paints permit faster recoating, give improved color retention with low side sheen, excellent alkali resistance and scrub resistance.

TO THE POINT

LOS ANGELES SCHOOL BURNING TEST WIDELY MISINTERPRETED

The Recent School Burning in California to test building design and fire protection equipment under carefully controlled conditions has caused a great deal of comment . . . pro and con. Some interpretations of the test findings are highly questionable, and in complete conflict with the objectives and results of the tests. One such statement is that "fire doors didn't retard the spread of fire or smoke." Actually, the test was conducted with stairwells open for three stories.

Fire experts already knew before starting "Operation School Burning" that most fire doors aren't kept closed in ordinary use—and *this is the problem!* Open or wedged fire doors are about as useful as a sprinkler system with the valves closed. The official report, "Operation School Burning," did not say stairwell enclosures (i.e., fire doors, Fire Barriers) are undesirable. No fire door can do its job if it's open. Many states have enacted criminal laws with fines as high as \$300.00 for anyone found wedging a fire door open. There's still nothing more effective than a fire door for stopping smoke and the spread of fire and keeping evacuation routes open.

* * *

A Recent Complaint from one of our hollow metal door customers was quieted somewhat when we explained the function of our new Customer Service Department. While our firm delivery policy is *first in, first out*, we recognize there are occasions when we can meet a customer's urgent needs and still fulfill our other production commitments. Our Manager of Customer Service sees to it that Overly's scheduling is "sales-minded." The best policy any manufacturer can offer is fast, immediate service while maintaining honest service to our other customers. In the long run, this policy favors all our customers.

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"To The Point" is published by Overly for the express interest of the architectural and building professions. Your comments are welcome and will be discussed in this column. Write: H. W. Wehe, Jr., Executive Vice President, Overly Manufacturing Company, Greensburg, Pa.

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WORK SURVEY NOW QUARTERLY

The American Institute of Architects has completely revised procedures for its Current Work Survey which reports on building construction work on the drawings boards of the nation's architects.

This account of building activity in the programming and design stage will enable economists and the building industry to accurately forecast the extent of building activity months in advance.

Results of the AIA Current Work Survey will henceforth be announced every three months instead of semi-annually as previously.

Under the new survey procedure the nearly 9,500 architectural and engineering firms in the U.S. which handle building construction are being queried as to the firm's size in terms of volume of business. From this "universe" a random sample of about 1,000 firms, representative of the total, will be selected for the quarterly reports.

As a "by-product" of this survey, participating firms will be in a position to measure and evaluate input and output of design work and compare their own volume with regional and national trends and averages.

AIA will announce the results of its first Quarterly Current Work Survey early in 1960.

CONFERENCE ON CHURCH ARCHITECTURE

The Leamington Hotel in Minneapolis, Minnesota will be the site of this annual conference during this coming May 3, 4 and 5.

Planned to stimulate basic reasoning and thinking by architects, churchmen and lay people on the relationship of architecture and planning to the needs of the modern church, the theme this year is: The Modern Church — Its Purpose and its Architectural Challenge.

Program highlights will include awards for recent outstanding churches and fine examples of modern church art.

Registration will take place Tuesday, May 3 to be followed by informal auto tours and a chapel service late in the day. In the evening the opening session will feature as keynote speaker the well known theologian Dr. Joseph Sittler. His topic will be: "The Complex Road to Simplicity."

Wednesday morning will see bus tours to outstanding examples of church architecture. In the afternoon, the Rev. Edward S. Frey, Chairman of the Department of Church Buildings and Architecture, National Council of Churches, will speak on: "Why What We Believe Determines What We Build."

Panel discussions will include: Building with Purpose and Beauty for Christian Worship; Building with Purpose and Beauty for Christian Education; Organizing the Building Program; Planning for Adequate Financing; and Planning for Camp Conferences. Discussions will be continued in the evening.

Thursday morning will see business sessions by sponsoring groups of the Department of Church Building and Architecture, Church Architectural Guild of America. An awards luncheon will follow. The afternoon session will feature slides of recent European and American Churches. The annual dinner will follow that evening.

On Friday, May 6 there will be a post-conference tour to St. John's Abby.

A special note: all shipped entries for the exhibit must be made to arrive between April 1, 1960 and April 28, 1960 to assure hanging.

Him I call an Architect, who, by a sure and wonderful Art and Method, is able, both with thought and invention, to devise, and, with execution, to complete all those Works, which, by means of the movement of great Weights, and the conjunction and amassment of Bodies, can, with the greatest Beauty, be adapted to the uses of Mankind: and to be able to do this, he must have a thorough insight into the noblest and most curious Sciences. Such must be the Architect.

— Leon Battista Alberti in
The Architecture of Leon Battista Alberti,
1st ed., London, 1726.

Technical Data Available

Gas Appliance Installation

Those involved with the installation of gas appliances and piping may now refer to a single American Standard as a result of cooperation between the gas industry and 16 national groups in developing a revision of the widely known *American Standard Installation of Gas Appliances and Gas Piping in Buildings* (excluding undiluted liquified petroleum gas), Z21.30-1954. The revision has been approved by the American Standards Association as *American Standard Installation of Gas Appliances and Gas Piping*, Z21.30-1959, and includes all fuel gases.

It is published by the American Gas Association, sponsor of ASA project Z21, and is available at 50 cents a copy from the American Standards Association, Dept. PR 122, 10 East Fortieth Street, New York 16, New York.

Maintenance Men Look At Housing Design

A guidebook which reflects the cumulative experience of architects, engineers, housing authority directors, maintenance heads, and others charged with erecting and operating low-rent housing developments across the country, is available.

From luxury construction to single-family suburban developments, the experience gained in two decades of public housing operation has yielded valuable lessons for developers of almost any type of housing.

Single copies are \$2.50.

Write to National Association of Housing and Redevelopment Officials, 1313, East 60th Street, Chicago 37, Illinois.

Specs For Porcelain Enamel

A tentative standard just released by the Porcelain Enamel Institute, Inc., gives specifications for architectural porcelain enamel on steel for exterior use.

The standard has been adopted by the Quality Development Committee, the Institute's specification authority.

Detailed requirements are given for the base metal, processing requirements, the porcelain enamel finish, panel flatness and clips and attachments.

Methods for testing weather resistance of the porcelain enamel finish are described. These include (1) an acid spot test for all surfaces and (2) a cupric sulphate test for all red, yellow and orange porcelain enamels.

Copies of the standard, PEI:S-100 (59), "Specification for Architectural Porcelain Enamel on Steel for Exterior Use" may be obtained from Porcelain Enamel Institute, 1145 Nineteenth Street, N.W., Washington 6, D. C.

The world is full of willing people; some willing to work and the rest willing to let them.

— Robert Frost

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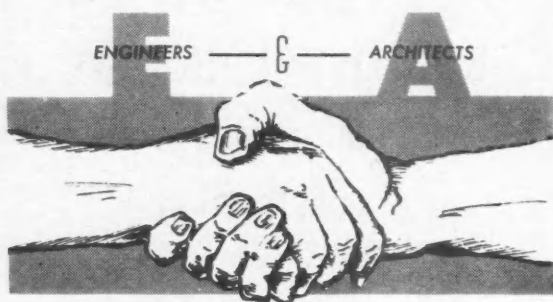
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CRITIQUE

To the Editor:

I meant to write to you and express my appreciation of the way you treated my little article in your excellent periodical. Ironically, the article was in a way responsible for this delay!

I have been receiving a wide range of comments, some of which required acknowledging, from students, architectural school heads and from local building materials manufacturers. An interest was evident which I hardly thought possible in a rather parochial field. One of the more recent remarks came from a very kind producer of slump brick who was good enough to telephone me, after I answered her letter, and again express appreciation of the article.

MILTON D. LOWENSTEIN
Arizona State Univ.,
Tempe

To the Editor:

Would it be possible to obtain a copy of the February 1960 *Arizona Architect*? I am requesting it for the article on Japanese Houses by Milton Lowenstein. There is a copy circulating in our architecture library, but I wish a copy for myself. As a student I think the article is good for its short, concise look at the ideas behind Japanese homes.

ANDREW SIM, JR.
Miami University
Oxford, Ohio

To the Editor:

Just a note to say "thank you," for the fine play that you gave our population and land use reports in your March issue. We are grateful to yourself and others, who have helped to get our story across.

Sincerely,
JOHN W. BEATTY
Planning Director
City of Phoenix

... Nature has not been equally lavish with her endowments, but each man has his own potential in terms of achievement and service. The awareness of that potential is the discovery of purpose; the fulfillment of that potential is the discovery of strength.

How does a man go about developing an inner awareness of important needs outside himself? How does he attach himself to those needs? Is he able to recognize the moral summons within him? To the extent that the individual is unconcerned about these questions, or lives apart from them, he is unfulfilled and only partly alive.

— Norman Cousins, in *Saturday Review*

CENTRAL ARIZONA CHAPTER NEWS

- Delegates, members, and the executive secretary were off to San Francisco this month to attend the national AIA convention. A full report of the activities will be carried in the next issue.
- The April meeting of the chapter was packed, both with members and items of business. Some subjects considered were the proposed reorganization of The Institute, the consideration of policies of the chapter in regard to scheduled meetings, content of meetings, fee schedules and public relations problems. The chapter resolved that there would be 10 regular meetings per year held in addition to whatever special and/or social events were scheduled. Therefore, the next regular meeting will consume most of the May session.
- A revised edition of the AIA pamphlet "Designing a Better Tomorrow" is now available in the chapter office or, in large quantities, from The Octagon. This publication is of great value in career day programs for schools.
- The firm of Horlbeck & Hickman has taken unto itself an associate — Curtis Schafer — and henceforth will be known as Horlbeck, Hickman and Associates.
- Since this column attempts to be newsy rather than profound, any items of gossip (malicious excluded!) are welcomed and may be phoned into the chapter office.

SOUTHERN ARIZONA CHAPTER NEWS

- The Chapter, through its executive committee, has taken steps to place architectural plans of deceased architects in a memorial archive with a historical museum.
- A scholarship fund is being established in memory of William Carr, AIA, recently deceased member of the Chapter.
- The April meeting featured a talk on the Tucson Plan by City Manager Porter Homer.
- Annual Awards Dinner has been set for the second Wednesday in May. Among the new awards will be two medals, to be presented posthumously by the University to the late chapter members Roy Place and Joe Joesler.

To the thinker, the most trifling external object often suggests ideas, which extend, link after link, from earth to Heaven. — Bulwer.

If the ancients left us ideas, to our credit be it spoken, we moderns are building houses for them. — A. B. Alcott.

By what strange law of mind is it, that an idea long overworked, and trodden under foot as a useless stone, suddenly sparkles out in new light as a discovered diamond? — Mrs. Stowe.

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IN THE BOOK WORLD

TOWN AND SQUARE: FROM AGORA TO VILLAGE GREEN by Paul Zucker. Columbia. Reviewed by George Christensen.

Today architect and city planner are almost separate professions. One deals with single or small groups of buildings; the other is concerned with vast city and regional programs.

Early cities were not constructed in such separation, but in integration. Paul Zucker follows the growth of early history with well explored city ruins, and re-examines ancient, living cities of today.

Towns are not just simple plans to Mr. Zucker, who selected his visual illustrations carefully. Many plans were accompanied by drawings or photos elaborating the plan of town or city.

The reading of how a city or town came to be can be relived with sound historical clarity in **Town and Square**. Not all of the author's opinions would convince any architect, but they would widen his conception of how we arrived at the urban chaos we have today.

While historical towns and cities are just that, we may see from Paul Zucker's book that architecture and planning were not so separated by the ancients, and today, even in our complex profession, we need more integration.

MODERN EUROPEAN ARCHITECTURE by A. Dorgelo. The post-war achievements in architecture in Europe have been enormous from artistic and technical points of view. The many different materials that are used in each of the countries and the various standards obtaining make it difficult to gain an exact idea of the trends in European architecture.

In cooperation with more than fifty outstanding European architects, the author has brought together in this book copious information on forty well-chosen buildings, from hotels to sports stadia and shopping centers, which show all the latest aspects of the architectural and technical achievements, thus giving an excellent survey of modern European architecture, as well as a comparison between the individual countries themselves. 252 pages. Illus. Drawings. D. Van Nostrand Co. Pre Pub. \$25.00.

EXHIBITION AND DISPLAY by James Gardner and Caroline Heller. An authoritative, practical guide in which every aspect of contemporary exhibition and display receives detailed analysis and evaluation. Its view ranges from individual store windows and sales floors, through industrial and government exhibits, to mammoth projects of international scale such as world trade fairs and expositions. The book studies the problems of designing exhibits to explain, create atmosphere, and sell. It also examines the methods and underlying principles used to achieve these objects. For the specialist, there is technical appendix on procedure. Architects, interior designers, advertising and merchandising managers, display artists, public relations directors, contractors, museum directors will find Exhibit and Display an invaluable reference. Dodge. 190 pages. Illus. \$13.75.

MAINTENANCE MEN LOOK AT HOUSING DESIGN. A guidebook which reflects the cumulative

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experience of architects, engineers, housing authority directors, maintenance heads, and others charged with erecting and operating low-rent housing developments across the country. From luxury construction to single-family suburban developments, the experience gained in two decades of public housing of almost any type of housing. \$2.50. Nat. Assn. of Housing & Redevelopment Officials.

GARDEN AND PATIO BUILDING BOOK. Actually contains five Sunset books: **Patio Book**, **Garden Work Centers**, **How to Build Patio Roofs, Walls, Walks, and Patio Floors** and **How to Build Fences and Gates**. Sunset-tested ideas for gardens large and small. How to plan and build simple plan shelters, lathhouses, lathed-over sideyards, greenhouses, coldframes, compost bins, storage units, and multi-purpose work centers. Ideas for planning and building potting areas, plant display units, tool storage. Lane. 574 pages. Illus. \$6.95.

THE NON-OBJECTIVE WORLD by Kasimir Malevich. The first and only English translation of one of the most profound statements of esthetic theory of the twentieth century. According to Malevich, Non-Objective art does not imitate nature; its essence is pure sensation. The usefulness of works of science and technology is short-lived but true art endures forever. 112 pages. Illus. Theobald. \$4.50.

GREEK SCULPTURE (Revised & Enlarged Edition), text by R. Lullies, with photographs by M. Hirmer. This is a new and enlarged edition of the volume that sold out within a short time of its publication in 1957. The grandeur and beauty of ancient Greek art is beautifully photographed and strikingly printed. 400 pages. Illus. Chronological Tables, Bibliography. Abrams. \$15.00.

LETTERING ON BUILDINGS by Nicolette Gray. This is the first book to deal with lettering as applied to all kinds of buildings. The author, an internationally acknowledged authority on the history of letter forms, clearly shows the relationship between lettering and architecture itself. She examines and illustrates the history and development of letter forms from Roman times to our own day. This leads to an outline of a comprehensive theory of lettering which illuminates a new way of looking at problems and possibilities. Illustrations throw light on many existing 19th and 20th century examples of all kinds of lettering in situ and demonstrates with the accompanying text how present-day architects and designers can successfully tackle the task of integrating lettering on and in many kinds of buildings.

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Books

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Unless your ceilings are functional, unless they serve several purposes other than merely hiding the joists, unless they really "go to work" for you, they're cheating on you — they haven't earned their place in your building.

Put your ceilings through the "AIA" test below to determine their real value to you:

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Occasionally a ceiling is used as an aesthetic feature and motif'd or patterned materials are in order, but generally ceilings should resist aesthetic distractions by being of clean, "unbusy," uncluttered appearance with deemphasized joints, overall levelness, and minimal patterns. The aesthetic value of a ceiling generally is proportional to its inconspicuousness.

A

ACOUSTICS

The "all-seeing" property of ceilings make them the ideal surface for reverberation control, but all too frequently rooms are over-treated by the indiscriminate use of absorptive ceiling materials. Consult a qualified acoustical consultant for proper design of auditoria, church naves, band or choral rooms, radio & television studios, multi-purpose rooms, etc.

ILLUMINATION

A properly designed ceiling can accomplish the support, layout, integration and flexibility of lighting fixtures as well as providing the maximum light reflectance and illumination. A good ceiling construction will reduce, rather than increase the cost of hanging light fixtures.

I

INCOMBUSTIBILITY

Incombustible ceiling constructions not only reduce fire hazards, but actually save money by reduction of insurance rates, ease of maintenance, durability and stability. Further, careful integration of incombustible ceilings into basic building design can often accomplish a first-cost savings.

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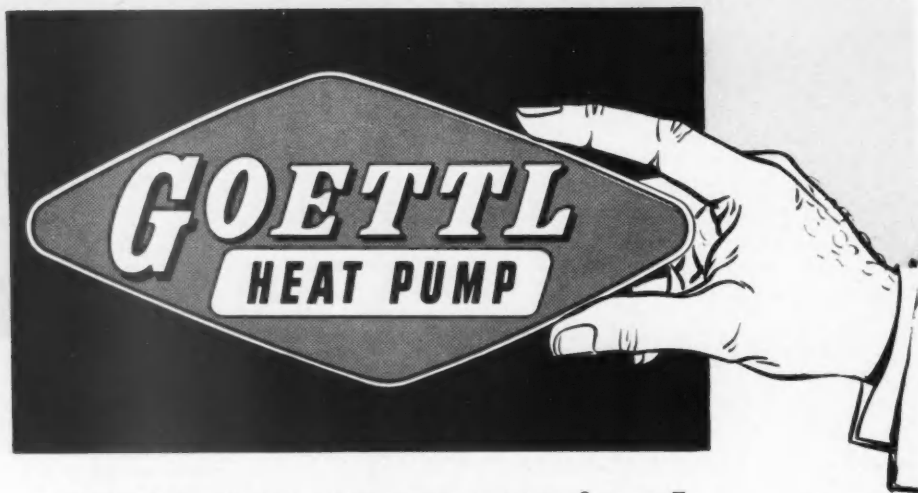
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